FINAL REPORT

Aircraft Accidents & Incidents

for the

Fitchburg Municipal Airport

Study Period 1994-2004

Prepared by

Mass Aeronautics Commission

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BACKGROUND

On October 26, 2004, a fatal aircraft accident occurred in the vicinity of Fitchburg Municipal Airport. Shortly after take-off, the homebuilt experimental aircraft crashed into a machine shop located near the airport, killing the pilot, the only person onboard. This was the third aircraft accident in the vicinity of the Fitchburg Airport in 2004, and the second fatal accident of the year. In the previous year, one accident occurred with 6 fatalities when a twin engine turbo-prop aircraft on approach crashed into a commercial building approximately 1 mile from the airport.

These occurrences drew concern from the communities of Fitchburg and Leominster that surround the airport. The Mayor of Leominster suggested that an independent safety study be conducted by a governmental agency. In response, the Chairman of the Massachusetts Aeronautics Commission (MAC) contacted the Mayors of Fitchburg and Leominster and volunteered the services of MAC to conduct a thorough review of the aircraft accident/incident history of the Fitchburg Airport from 1994 through 2004. U.S. Congressman John W. Olver requested the Federal Aviation Administration (FAA) and the National Transportation Safety Board (NTSB) respond accordingly from their accident/incident records, and asked that all three agencies compare the results for the Fitchburg Airport to other airports of similar characteristics. The MAC began the research and analysis for this study in November, 2004.

Pursuant to Massachusetts General Laws, Chapter 90, Section 41, the MAC is required to investigate "*any accident involving personal injury occurring in connection with aeronautics within the commonwealth*." Consequently, the MAC has investigatory records for each such event and has researched, reviewed, compiled and organized data for all aircraft accidents and incidents occurring in Massachusetts, within five (5) NM of a municipal airport, from January, 1994 through December, 2004. Attachment 1, immediately following the text of this report, includes a complete summary of all events (accidents + incidents) for the Fitchburg Airport.

DEFINITIONS OF ACCIDENT AND INCIDENT

CFR Title 49 NTSB Part 830 Section 830.2 defines the following:

"Aircraft Accident" - an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage.

"Incident" - an occurrence other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operations.

"Serious Injury" - any injury which: (1) Requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, muscle, or tendon damage; (4) involves any internal organ; or (5) involves second or third-degree burns, or any burns affecting more than 5 percent of the body surface.

"Substantial Damage" - damage or failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component. Engine failure or damage limited to an engine if only one engine fails or is damaged, bent fairings or cowling, dented skin, small punctured holes in the skin or fabric, ground damage rotor or propeller blades, and damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wingtips are not considered "substantial damage" for the purpose of this Part.

24 MUNICIPALLY OWNED PUBLIC-USE AIRPORTS COMPARED

The complete 11-year history of all aircraft accident and incident data was organized for comparative purposes (see Exhibit A); all 24 municipally-owned, public-use airports in Massachusetts were compared. The results of this analysis follow, with the totals for the Fitchburg Airport noted separately:

Aircraft Accident & Incident Data from 1/1/1994 through 12/31/2004

Statewide Totals 1994-2004	**Total**	**Fitchburg**	**% Total**
Total Events (all accidents + incidents)	345	27	8 %
Total Accidents (fatal + non-fatal)	170	12	7 %
Total Fatal Accidents	48	7	15 %
Total Deaths resulting from Fatal Accidents	71	14	20 %
Total Non-Fatal Accidents	122	5	4 %
Total Incidents	175	15	9 %

The 24 airports were ranked # 1 through # 24 using the totals for each category, with the airport having the highest number in each category ranked #1 (see Exhibits B through G). The rankings for Fitchburg Airport in each category are summarized below:

Aircraft Accident & Incident Data from 1/1/1994 through 12/31/2004

Statewide Totals 1994-2004	**Total**	**Fitchburg**	**Rank**
Total Events (all accidents + incidents)	345	27	3rd
Total Accidents (fatal + non-fatal)	170	12	3rd
Total Fatal Accidents	48	7	1st
Total Deaths resulting from Fatal Accidents	71	14	1st
Total Non-Fatal Accidents	122	5	10th
Total Incidents	175	15	2nd

EVENTS HAPPENING "ON / OFF" AIRPORT

The 24 airports were compared using the total number of accidents occurring "on airport" and "off airport" (see Exhibit H), and then ranked in descending order of total number of events in each category (see Exhibits I and J). Fitchburg Airport ranked as follows:

Aircraft Accident Data (No Incidents) – Accident Location On / Off Airport

Statewide Totals 1994-2004	**Total**	**Fitchburg**	**Rank**
Total Accidents – On Airport	84	3	10th
25% of all Fitchburg accidents occurred on airport		3 of 12	20th
Total Accidents – Off Airport	86	9	1st
75% of all Fitchburg accidents occurred off airport		9 of 12	4th

All fatal accidents occurred "off airport" with no serious injuries to persons on the ground. No fatal accidents occurred "on airport".

INVESTIGATION OF CAUSE FOR AIRCRAFT ACCIDENTS

All accident reports for the study period were thoroughly reviewed and categorized into various causes, as determined by the MAC (see Exhibit K). Not surprisingly, the overwhelming cause of most aircraft accidents is generally categorized as "Pilot Error". The statewide average for the study period indicates that 59% of aircraft accidents are the result of "Pilot Error"; the national average determined by the Aircraft Owners & Pilots Association (AOPA) indicates that 72% of accidents are the result of "Pilot Error". The MAC study results were then ranked in descending order of total number of accidents categorized as "Pilot Error" (see Exhibit L). The Fitchburg Airport ranked 2nd among the 24 municipal airports for the total number of accidents attributed to "Pilot Error". Ranking by percentage of accidents instead of number reveals that the Fitchburg Airport drops to 10th place among the 24 municipal airports (see Exhibit M). The results are summarized as follows:

Aircraft Accident Data (No Incidents) – Accidents Categorized as "Pilot Error"

Statewide Totals 1994-2004	**Total**	**Fitchburg**	**Rank**
Total Accidents categorized as Pilot Error	101	8	2nd
67% of all Fitchburg accidents are the result of Pilot Error		8 of 12	10th

The following table summarizes all Fitchburg Airport accidents by Cause (determined by MAC):

Aircraft Accident Data (No Incidents) – Accidents Categorized by Probable Cause

Statewide Totals 1994-2004	**State Total**	**State %**	**Fitchburg**	**FIT %**
Pilot Error	101	59%	8 of 12	67%
Mechanical Failure	20	12%	1 of 12	8%
Engine Failure	18	11%	1 of 12	8%
Weather	18	11%	0 of 12	
Unknown / Other	13	7%	2 of 12	17%

The MAC records indicate that 5 of 7 (71%) of the fatal Fitchburg accidents, accounting for 12 of the 14 deaths, were caused by "Pilot Error". Regarding the other two fatal accidents, one is still under investigation and the cause of the other accident is "unknown.

The category of "Pilot Error", or "Pilot-Related Causes" can encompass a wide range of errors or mistakes such as inadequate preflight inspection and flight preparation, improper preventative maintenance, lack of flight planning and fuel management, operating an aircraft outside of its structural limits or continuing a flight into conditions exceeding the capabilities, knowledge or experience of the pilot. A mistake in judgment is considered "Pilot Error", often attributed to lack of pilot experience.

The Air Safety Foundation (ASF), a division of the Aircraft Owners & Pilots Association (AOPA), indicates in its 2003 Nall Report that nationally, "*pilot-related problems accounted for 72.6 percent of all accidents and 70.5 percent of the fatal accidents*", in 2002. This data is comparable to the 67% attributed to "pilot error" for the total number of Fitchburg accidents over 11 years from 1994 through 2004, which is 6% below the national average determined by AOPA, and 71% attributed to "pilot error" for the total number of fatal accidents for the study period.

The ASF 2003 Nall Report combined "mechanical failure" and "engine failure" into one cause and determined that 18.1% of the accidents were attributed to that category on a national scale. This is comparable to the 17% determined for Fitchburg accidents, and 23 % statewide.

AIRCRAFT ACCIDENTS BY AIRCRAFT TYPE

Aircraft accidents were analyzed by the "type" of aircraft involved in the event (see Exhibit N). MAC records indicate that 7 of the 12 (58%) aircraft accidents associated with Fitchburg Airport involve Single Engine Piston (SEP) aircraft; this compares to the statewide average of 70% for SEP aircraft. The SEP aircraft category represents the most numerous "type" of aircraft in the U.S. fleet of general aviation aircraft. The Fitchburg Airport ranks 7th among the 24 municipal airports in the SEP category for the study period (see Exhibit O). Ranking the SEP category by percentage rather than by the total number of events, the Fitchburg Airport drops to 16th place out of 24 airports in the SEP category for the study period (see Exhibit P). The remaining 5 aircraft accidents at Fitchburg involved multi-engine piston (1); multi-engine turbine (1); and, experimental aircraft (3). See the table below.

Aircraft Accident Data (No Incidents) – Accidents By Aircraft "Type"

Statewide Totals 1994-2004	**Total**	**Fitchburg**	**FIT %**
Single Engine Piston (SEP)	119	7 of 12	58%
Multi-Engine Piston (MEP)	17	1 of 12	8%
Multi-Engine Turbine (MET)	8	1 of 12	8%
Multi-Engine Jet (MEJ)	5	0 of 12	
Single Engine Piston Helicopter (SHP)	8	0 of 12	
Single Engine Turbine Helicopter (SHT)	4	0 of 12	
Ultralight Aircraft (ULT)	3	0 of 12	
Experimental Aircraft (EXP)	4	3 of 12	25%
Glider Aircraft (GLD)	2	0 of 12	

The AOPA Air Safety Report indicates that 30% of home-built experimental aircraft accidents result in fatalities compared with 19% of accidents involving factory-built aircraft. Experimental aircraft (EXP) were involved in 2 incidents in addition to the 3 accidents noted above (5 EXP events total). One (1) EXP accident accounted for 1 fatality. Ultralight aircraft (ULT) were involved in 2 incidents, but no aircraft accidents.

COMPARATIVE AIRPORT FEATURES

A matrix was developed using 20 unique airport features in an effort to compare the Fitchburg Airport against the other 23 municipal, public-use airports in Massachusetts (see Exhibit Q). This data is used to gain a more comprehensive understanding of the character of each airport.

The matrix of airport characteristics was completed by information supplied by the individual Airport Managers. The characteristics for the Fitchburg Airport are as follows:

Fitchburg Airport has; 1) over 100 based aircraft; 2) multiple runways; 3) primary runway over 4,000 feet; 4) based aircraft include Multi-Engine Piston or Jet (MEP/J); 5) based aircraft include Experimental or Ultralight aircraft (EXP/ULT); 6) no air traffic control tower; 7) no commercial passenger service; 8) is not an FAA Part 139 certificated airport; 9) Part 135 Air Taxi operations; 10) a fixed base operator; 11) a flight school; 12) a restaurant on airport; 13) a non-precision approach procedure; 14) no precision instrument approach procedure; 15) an educational/safety training program/air safety committee; 16) community surroundings densely developed (residential/industrial); 17) community not rural; 18) airport environment hilly/mountainous terrain; 19) not flat terrain; 20) not a coastal airport.

Recognizing that no two airports are exactly alike, the closest comparison airport to Fitchburg appears to be Plymouth Municipal Airport. Plymouth differs only by the feature of flat terrain in contrast to Fitchburg's hilly/mountainous terrain. The Beverly and Norwood Airports are the next closest in terms of the airport characteristics identified. The Beverly Municipal Airport differs from Fitchburg by having a control tower, and no safety training program in place. The Norwood Memorial Airport also differs from Fitchburg by having a control tower, not having any experimental or ultralight aircraft based at the airport, and flat terrain. A comparison of the Fitchburg, Plymouth, Beverly and Norwood Airports follows:

Aircraft Accident & Incident Data – Comparison of Airports

	Fitchburg		**Plymouth**		**Beverly**		**Norwood**	
	No.	Rank	No.	Rank	No.	Rank	No.	Rank
Total Events (accidents + incidents)	27	3rd	23	4th	20	6th	34	1st
Total Accidents (fatal + non-fatal)	12	3rd	14	2nd	6	14th	12	4th
Total Fatal Accidents	7	1st	3	8th	2	10th	2	12th
Total Deaths	14	1st	4	8th	4	7th	2	12th
Total Non-Fatal Accidents	5	10th	11	1st	4	12th	10	4th
Total Incidents	15	2nd	9	9th	14	4th	22	1st
Total Accidents On Airport	3	10th	8	3rd	4	9th	10	1st
Total Accidents Off Airport	9	1st	6	5th	2	16th	2	18th
Total Accidents Caused By Pilot Error	8	2nd	6	5th	5	10th	9	1st
Total Accidents Involving Single Engine Piston (SEP) Aircraft	7	7th	8	6th	4	15th	8	5th

In summary, Fitchburg ranks 1st out of 24 airports in total number of fatal accidents, deaths, and accidents "off airport", 2nd in total incidents, 2nd in pilot error as a cause, and 3rd in total number of events and total accidents. Plymouth ranks 1st in non-fatal accidents and 2nd in total accidents. Note that Fitchburg has only 3 accidents "ON" airport while 9 (75%) of Fitchburg's accidents are "OFF" airport, and Plymouth's 8 of 14 (57%) accidents occurred "ON" airport. Norwood ranks 1st in total number of events, total incidents, total accidents "on airport" and total accidents caused by "Pilot Error". Based on the comparison of airport characteristics similar to Fitchburg, Beverly Airport appears to be the least comparable.

GEOGRAPHICAL LOCATION OF FITCHBURG AIRPORT

Fitchburg Airport is located approximately 40 statute miles northwest of Boston with a field elevation of 348 feet above mean sea level (MSL). It is bordered on the southwest by the Nashua River and is surrounded by densely developed industrial and residential areas including the business sections of the cities of Fitchburg and Leominster. The airport is surrounded within 3-4 nautical miles in each direction by significant hills reaching up to 986 feet MSL to the southwest, 853 feet MSL to the northwest, 689 feet MSL to the northeast and lesser hills up to 541 feet MSL to the southeast. It consists of 2 intersecting runways; 14 – 32 which is 4,511 feet long and 02 – 20 which is 3,502 feet long. The primary runway is 32 since the prevailing winds are from the northwest. The airport does not have a precision instrument approach to any of its runways. It has several non-precision instrument approaches having minimum descent altitudes (MDA) from 1,320 feet MSL [979 feet above ground level (AGL) to 960 feet MSL (624 feet AGL)], depending upon the intended runway of use. The term MDA means that an aircraft is not authorized to descend any lower than the depicted altitude on the instrument approach chart the pilot is using for guidance on the approach to the airport. Any descent below the MDA will not assure the pilot of clearance from terrain or other obstacles.

Fitchburg Airport does not have an Air Traffic Control Tower, hence no statistics are gathered to determine the number of aircraft operations for the airport. The airport is located 25 statute miles northwest of Bedford-Hanscom Field and 20 statute miles southwest of Boire Field in Nashua, New Hampshire. Both of these fields have one or more flight training schools whose instructors and students use Fitchburg Airport as an outlying field for practice landings and take-offs away from their home bases. Daniel Webster College Flight School in Nashua, NH has 31 training aircraft. Executive Flyers Flight School and East Coast Aero Club, both based at Bedford-Hanscom Field, have 38 and 30 training aircraft, respectively. Fitchburg's Colonial Aviation flight school located at the airport has 6 training aircraft. It is assumed that significant numbers of training flights from all of these flight schools utilize the Fitchburg Airport for practice landings and take-offs, however no data is available to quantify this statement.

ANALYSIS OF PILOT FLIGHT TIME

Using 500 pilot hours and below as an arbitrary class considered to be student pilots or "low time" pilots, the MAC collected data on the number of events (total accidents + incidents) occurring at Fitchburg Airport over 11 years involving this class. The data for "low time" pilots at Fitchburg Airport is as follows:

- 5 out of 15 (33%) aircraft incidents involved student pilots with 34 hours, 43 hours, 47 hours, 150 hours and 400 hours. (Total hours unknown for 2 pilots involved in incidents).
- 3 out of 5 (60%) non-fatal accidents involved “low time” pilots with 45 hours, 131 hours and 326 hours. (Total hours unknown for 1 pilot involved in an accident).
- 2 out of 7 (29%) fatal accidents involved “low time” pilots with 190 hours and 409 hours. One (1) fatality occurred when a solo student pilot with 45 hours made a non-standard traffic pattern entry and overtook an aircraft in the pattern causing a fatal collision.

In contrast, 5 of 7 (71%) of the fatal accidents resulting in 11 of 14 (79%) deaths involved pilots with 500 or more hours (5,407 hours, 1,666 hours, 875 hours, 6,100 hours and 5,250 hours). Although one might naturally think that pilots with high time (500 hours or more) are less likely to be involved in aircraft accidents, both state and national statistics suggest otherwise. The low time pilot (less than 500 hours) actually is less likely to be involved in a fatal accident.

REVIEW OF FATAL AIRCRAFT ACCIDENTS AT FITCHBURG AIRPORT

It is beneficial to review the factual information learned from the investigations of the fatal accidents to gain a better perspective of how they happened. The following summarizes each of the fatal accidents occurring in the vicinity of Fitchburg Airport from 1994 through 2004:

1994 through 1996 - No accidents (fatal or non-fatal) occurred during this period.

October 31, 1997 - This was a twin-engine training flight with an instructor and a pilot trainee on his second multi-engine training flight. The instructor had logged 5,407 hours with 22 hours of that time in the accident model aircraft. The instructor failed to follow standard procedures by shutting down and feathering the left engine while having the student practice an emergency procedure by initiating a single engine go around at low altitude on final approach. The landing gear and flaps were in the down position and the hydraulic pump, located on the feathered left engine, was not available to produce pressure to raise the landing gear and flaps. Single engine flight reduced climb performance and inadequate airspeed resulted in a loss of control of the aircraft. The aircraft crashed approximately .6 miles west of the Fitchburg Airport coming to rest at the juncture of 4 residential back yards. The fuselage, cabin and wing were destroyed by fire. Pilot error. 2 fatalities.

1998 - No accidents (fatal or non-fatal) occurred during this period.

February 11, 1999 - The single engine aircraft piloted by an 80 year old pilot was on an approach to Runway 32 at Fitchburg on a clear, calm afternoon. Witnesses saw the aircraft low on the approach with the engine running normally. The engine revved up apparently trying to climb over the trees. The aircraft struck several trees approximately ½ mile from the runway and came to rest in a residential back yard. The pilot died of blunt head trauma. First responders found the pilot suffered a deep laceration of the forehead with no blood present.

The pilot had accumulated 1,666 hours of flight time with 5.4 hours over the prior 5 months. He had flown only 11.5 hours in 1998 and 28.5 hours in 1997. Probable cause was the pilot's failure to maintain proper altitude during the approach. Pilot error. 1 fatality.

December 22, 1999 - This fatal accident involved a solo student who had accumulated 45 flight hours. The pilot entered the traffic pattern in a non-standard manner, overtook another aircraft in the pattern resulting in a collision and fatal injuries to the pilot overtaken. Pilot error. 1 fatality.

July 26, 2000 - This event involved a single engine propeller aircraft transiting the area enroute from Parkersburg, West Virginia to Maine with only the pilot onboard. He had accumulated 884 total flight hours and held a private pilot certificate. He did not hold an instrument rating. The aircraft impacted terrain approximately 1.8 miles NNE of Fitchburg Airport. The pilot did not indicate that he intended to land at Fitchburg and had not filed a flight plan.

The aircraft manufacturer stated that the aircraft's endurance was 4 hours and 26 minutes. The accident flight lasted approximately 4 hours and 30 minutes. No fuel was evident in the tanks when examined at the accident site. The pilot's inadequate preflight planning resulted in fuel exhaustion. The pilot was fatally injured. Pilot error. 1 fatality.

2001 through 2002 - No fatal accidents occurred during this period.

April 4, 2003 - This was a catastrophic accident involving a twin engine Beechcraft King Air turbo-prop on an approach to the Fitchburg Airport that impacted a building approximately 1 mile from the threshold of Runway 32 in Leominster, Massachusetts, resulting in fatal injuries to the pilot, the pilot rated passenger and 4 additional passengers. One passenger was seriously injured and one person inside the building received minor injuries. The pilot had recorded 6,100 flight hours with 1,772 hours in the accident-type aircraft.

The flight departed LaGuardia with passengers and contacted Boston Traffic Control requesting a GPS RWY 14 approach to Fitchburg Airport at 9:18 A.M. which was approved at 9:21. A special weather observation for Fitchburg at 9:31 indicated wind from 070 degrees at 9 knots, visibility 3 miles in mist, ceiling broken at 1,100 feet AGL, overcast at 1,700 feet AGL, temperature 29 F, dew point 27 degrees F, barometric pressure 30.15 inches Hg. (A known meteorological rule states that when temperature and dew point are within 2 degrees of one another, fog can be expected.) Some stations in the area reported ceilings from 700 to 1,400 feet, reduced visibility, fog, freezing rain and light snow.

The Minimum Descent Altitude for a straight-in approach or a circling approach to runway 14 is 1,320 feet MSL (972 feet AGL). After the aircraft passed the missed approach point (MAP) at 9:32 A.M., the aircraft continued to descend. At 9:34 A.M. radar data recorded its altitude at 800 feet, 172 feet below minimum descent altitude, and continuing to descend. Witnesses on the ground at the airport saw the aircraft breaking in and out of clouds, "close in" to the airport, for a tight circling approach to Runway 32 and in a tight, steep left turn with the wings positioned vertically in the turn. A witness who was familiar with the airport traffic pattern observed the aircraft at approximately 450 feet in a continuing left turn until the aircraft stalled, the nose dropped and the aircraft descended to the ground. Referencing the Pilot's Operating Handbook for the aircraft revealed that in a 60 degree angle of bank, the stall speed of the aircraft in this configuration was approximately 123 knots. The aircraft was last tracked earlier in the approach on a down-wind leg at 120 knots.

Toxicology tests performed on the pilot revealed multiple drugs including imipramine, an antidepressant that has detrimental effects on motor skills, and carbamazepine, typically used to control seizures. His medical record revealed he suffered from a severe neurological disorder, possible seizure disorder resulting in frequent episodes of debilitating pain. Three months before the accident, the pilot was diagnosed with viral meningitis and a severe skin infection with multiple abscesses. Neither the pilot's conditions nor the medication he was taking was reported on his application for an airman medical certificate on April 16, 2002. Pilot's failure to maintain airspeed during excessive bank angle caused the stall and impact with the building. Pilot's impairment from prescription medication was a factor in the cause. Pilot error. 6 fatalities.

June 1, 2004 - This is a fatal accident involving a single engine aircraft with the pilot and his daughter suffering fatal injuries when the aircraft crashed in a wooded area approximately 1.7 miles from the threshold of Runway 32 at approximately 9:30 P.M.. The flight originated from Manchester, NH. Night meteorological conditions prevailed. The private pilot had accumulated 409 flight hours and had flown only 7 hours in the previous 6 months. He had an instrument rating but had accumulated only 0.7 hours of actual instrument time in the previous six months.

The weather reported at 9:17 P.M. at Fitchburg was light winds 3 miles visibility in mist. Overcast was variable, 400 feet AGL to 1,100 feet AGL, temperature 48 degrees F, dew point 46 degrees F. (Note 2 degree separation in air temperature and dew point is likely to produce fog and low visibility).

Probable cause has not yet been determined and accident is still under investigation. Preliminary information suggests the pilot did not maintain minimum descent altitude in attempt to remain clear of overcast. 2 fatalities.

October 26, 2004 - This is an accident involving the first flight of an Experimental home-built aircraft with 1 person, the pilot onboard. The pilot was fatally injured. He had accumulated 5,250 hours of flight time and held an airline transport pilot rating (ATP-R). The weather at Fitchburg was clear skies with wind variable from the NW to N at 9 knots.

Witnesses state that as soon as the aircraft lifted off Runway 32, it appeared the pilot was having problems controlling the aircraft in the pitch mode. The aircraft impacted several trees and then impacted a building with a machine shop/business enclosed. The aircraft exploded on impact and was destroyed in the fire. Fire damage also occurred to the building. No one on the ground was injured.

No probable cause has been determined since the accident is still under investigation. Preliminary information suggests control linkage problems. 1 fatality.

EXPERIMENTAL AND ULTRALIGHT AIRCRAFT

Several home-built experimental and ultralight aircraft are presently based at Fitchburg Airport. The event data for these classes of aircraft operating at Fitchburg from 1994-2004 is as follows:

- 2 Ultralight incidents
- 2 Experimental aircraft incidents
- 3 Experimental aircraft accidents
- 1 Experimental aircraft fatal accident

The fatal accident was an initial test flight flown by a pilot with 5,250 total flight hours and appears to have been control linkage problems experienced directly after take-off.

The AOPA Air Safety Report indicates that 30% of home-built experimental aircraft accidents result in fatalities compared with 19% of accidents involving factory-built aircraft. Experimental aircraft (EXP) were involved in 2 incidents in addition to the 3 accidents noted above (5 EXP events total). One (1) EXP accident accounted for 1 fatality. Ultralight aircraft (ULT) were involved in 2 incidents, but no aircraft accidents.

FORMATION OF AN AIRPORT SAFETY COMMITTEE

Prior to the completion of this report, the MAC approached the mayors of Fitchburg and Leominster and the Fitchburg Airport Commission regarding the formation of an Airport Safety Committee to monitor and report on airport safety issues including local aircraft operations, to address the importance of developing an understanding of the functions and operation of the airport in the community, to emphasize the need for developing a strong educational training program at the airport, and to encourage members of the public to become more involved and aware of safety improvements needed at the airport.

Suggested members of the Airport Safety Committee include:

- A representative resident of Fitchburg appointed by the Mayor
- A representative resident of Leominster appointed by the Mayor
- The airport manager
- A member of the Fitchburg Airport Commission
- A representative from one of the FBO's on the field
- A representative from the pilot group at the airport
- A representative from the business community of each city selected by the respective Chamber of Commerce
- A representative of the homeowner's association
- A representative from MAC
- A representative from the FAA

The Airport Safety Committee would meet once per month, or more often if the need arises. Officers may be elected by the membership; it is recommended that a record of all meetings be maintained. It is also suggested that an Officer of the Airport Safety Committee attend Fitchburg Airport Commission meetings and report their findings regularly to the Airport Commission. The Airport Safety Committee should act in an advisory capacity to the Fitchburg Airport Commission on issues such as compliance with local communication procedures as described in the Aeronautical Information Manual (AIM), runway utilization, local traffic pattern practices, noise abatement procedures, management safety directives, pilot complaints, weather reporting equipment and capabilities, etc.

CONCLUSION

The analysis of aircraft accidents and incidents occurring in the vicinity of Fitchburg Municipal Airport for the 11 year study period, 1994 through 2004, has not revealed any patterns to suggest that the airport or its operational practices were lacking in any parameter to have been the cause of any of the events. In summary:

- Pilot Error was the cause of 8 of 12 accidents, or 67%, which is below the national average of 72 % indicated by the AOPA Air Safety Foundation.
- Pilot Error accounted for 12 of the 14 fatalities (86%), with 1 accident still under investigation and 1 with "unknown" cause.
- All fatal accidents (7) occurred "OFF" Airport.
- 3 of 5 (60%) non-fatal accidents occurred "ON" Airport.
- 1 accident in 2003 accounted for 6 fatalities, 43% of all deaths over 11 years.
- Only 4 accidents during the 11-year study period involved experimental aircraft; 3 of those 4 accidents (75%) occurred at the Fitchburg Airport, all since 2002.

The statistics for experimental aircraft accidents at Fitchburg Airport are noteworthy. Although the sample is quite limited, the fact remains that seventy-five percent of the experimental aircraft accidents in Massachusetts over the 11-year study period occurred in the vicinity of Fitchburg Airport within 2 years, 2002 through 2004. These three accidents account for 25% of all aircraft accidents at Fitchburg Airport since 1994. This appears to be a high percentage considering that the number of experimental aircraft based at Fitchburg is insignificant compared to the total number of based aircraft (120 +/-) at the airport.

The number of accidents in the recent past (2002 through 2004) and the number of deaths resulting from those accidents at Fitchburg Airport is greater than at any other time during the 11-year study period, which is certainly cause for concern. However, there is no evidence to explain why this has happened nor is there any known reason to suggest that this trend should continue; no physical, mechanical or technical problems appear to exist with the airport or its surroundings.

Nevertheless, heightened awareness of Fitchburg's accident history, continued education for the pilot community, and an active Airport Safety Committee can be a positive force for improving airport safety.

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents and Incidents
Fitchburg Municipal Airport

No.	MAC Case Number	NTSB	Event Type - Structural Damage	No. of Fatalities	Location	On / Off Airport	Date of Accident	Registration Number	Aircraft Type	MAC Cause	MAC Description of Cause	Pilot Hours
1	NF1-94/00E	-	Incident - Minor		Fitchburg	On	01/26/94	1982Z	SEP	Pilot Error	Pilot hand-propped aircraft, which collided with other aircraft	Unknown
2	NF8-94/019	-	Incident - Minor		Fitchburg	On	08/28/94	N6350Q	SEP	Weather	Cross wind; nose gear collapse	43
3	NF10-94/024	L	Incident - Minor		Fitchburg	On	10/15/94	N4923N	SEP	Weather	Wind gusts - cross wind	19,495
4	NF12-94/033	-	Incident - None		Fitchburg	On	12/29/94	N2843N	SEP	Mechanical Failure	Loss of electrical power in flight	Unknown
5	NF8-95/031	-	Incident - Minor		Fitchburg	On	08/21/95	N201HR	SEP	Mechanical Failure	Structural failure; landing gear collapse	800
6	NF96024	-	Incident - Minor		Fitchburg	On	06/16/96	Ultralight	ULT	Pilot Error	Ground incident; tie-down came loose / ran into another airplane	400
7	F97003	F	Destroyed	2	Fitchburg	Off	10/31/97	N3EV	MEP	Pilot Error	Failure to maintain control; Instructor feathered critical engine	5,407
8	NF97005	-	Incident - Minor		Fitchburg	On	05/14/97	N69204	SEP	Pilot Error	Failure to maintain control on take-off roll (went into grass)	34
9	NF97017	L	Accident - Major		Fitchburg	On	07/22/97	N3553S	SEP	Engine failure	Mixture of 100LL and automobile gas	326
10	NF97022	-	Incident - Minor		Fitchburg	On	08/11/97	N5263H	SEP	Mechanical failure	Structural failure; right main gear collapse	716
11	NF98013	-	Incident - Minor		Fitchburg	On	03/28/98	N4736B	SEP	Pilot Error	Failure to maintain control; cross wind / nose wheel collapse	47
12	F99001	F	Destroyed	1	Leominster	Off	02/11/99	N1460D	SEP	Unknown	Possible medical condition (hit trees); head laceration w/o blood flow	1,666
13	F99007A	F	Accident - Major	1	Leominster	Off	12/22/99	N672DW	SEP	Pilot Error	Mid-air	190
14	F99007B	F	Accident - Major		Leominster	Off	12/22/99	N96273	SEP	Pilot Error	Mid-air; student pilot from Daniel Webster College; incorrect entry into traffic pattern	45
15	F00003	F	Destroyed	1	Lunenburg	Off	07/26/00	N5727Q	SEP	Pilot Error	Fuel exhaustion; inadequate pre-flight planning	875
16	NF00009	-	Incident - Minor		Fitchburg	On	04/29/00	N6287T	SEP	Pilot Error	Instructor failed to lower gear	3,570
17	NF00022	L	Incident - Minor		Fitchburg	On	07/08/00	N21072	SEP	Pilot Error	Cross wind nose gear vibration; A/C diverted to the grass on side of runway	150
18	NF00036	-	Incident - Minor		Fitchburg	On	10/22/00	N2760V	SEP	Mechanical Failure	Nose gear collapse	2,500
19	NF01014	-	Accident - Major		Fitchburg	On	05/12/01	N4635J	SEP	Pilot Error	Failed to lower landing gear	131
20	NF02018	-	Destroyed		Lancaster	Off	07/19/02	N450RC	SHP-Exp.	Pilot Error	Loss of control while hovering	Unknown
21	NF02026	-	Incident - Minor		Fitchburg	On	08/25/02	N15PZ	SEP-Exp.	Pilot Error	Hard landing; gear collapse	4,500
22	NF02042	-	Incident - None		Lunenburg	Off	12/24/02	N78AK	SEP-Exp.	Engine Failure	Landed on Route 13; water in fuel likely caused power failure (ice?)	Unknown
23	F03002	F	Destroyed	6	Leominster	Off	04/04/03	N257CG	MET	Pilot Error	Secondary cause - prescription drugs taken (i.e. unauthorized by FARs)	6,100
24	F04003	F	Destroyed	2	Leominster	Off	06/01/04	N21072	SEP	Pilot Error	Descended below minimums, struck trees	409
25	F04004	L	Destroyed	1	Leominster	Off	10/26/04	N166DK	SEP Exp.	Still under investigation	Loss of control on initial test flight (still under investigation)	5,250
26	NF04018	L	Destroyed		Fitchburg	On	05/27/04	N5139W	SEP Exp.	Mechanical Failure	Control problems with elevator	817
27	NF04028U	-	Incident - Minor		Leominster	Off	08/29/04	N/A	ULT	Pilot Error	Pilot inadvertently shut off fuel	600
				14								

Notes:
1 FAA investigates every accident & incident, no FAA reports are on file with MAC
2 NTSB investigation as indicated by type (F = Field Investigation, L = Limited Investigation)
3 MAC case numbers are designated as F = Fatal Accident, NF = Non-fatal Accident or Incident

Legend
- 🟩 Incident
- 🟨 Accident
- 🟧 Accident - Fatal

Attachment 1

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Alphabetical Order (Accidents + Incidents)**

		Aircraft Accidents				Total	
	AIRPORT	**Fatal**	**Non Fatal**	**Total**	**Incidents**	**Events**	**Deaths**
1	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	14	28	6
2	BEDFORD-HANSCOM FIELD	2	7	9	7	16	4
3	BEVERLY MUNICIPAL AIRPORT	2	4	6	14	20	4
4	CHATHAM MUNICIPAL AIRPORT	3	7	10	9	19	3
5	FITCHBURG MUNICIPAL AIRPORT	7	5	12	15	27	14
6	GARDNER MUNICIPAL AIRPORT	0	3	3	4	7	0
7	LAWRENCE MUNICIPAL AIRPORT	0	7	7	7	14	0
8	MANSFIELD MUNICIPAL AIRPORT	1	10	11	9	20	1
9	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	1	6	0
10	MARTHA'S VINEYARD AIRPORT	4	3	7	14	21	10
11	NANTUCKET MEMORIAL AIRPORT	2	6	8	6	14	2
12	NEW BEDFORD REGIONAL AIRPORT	3	4	7	6	13	3
13	NORTH ADAMS AIRPORT	4	2	6	0	6	5
14	NORWOOD MEMORIAL AIRPORT	2	10	12	22	34	2
15	ORANGE MUNICIPAL AIRPORT	2	1	3	2	5	2
16	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	4	11	7
17	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	9	23	4
18	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	5	9	1
19	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	0	4	0
20	TAUNTON MUNICIPAL AIRPORT	2	10	12	6	18	2
21	TURNERS FALLS AIRPORT	0	1	1	0	1	0
22	WESTFIELD - BARNES AIRPORT	1	4	5	6	11	1
23	WESTOVER METROPOLITAN AIRPORT	0	0	0	1	1	0
24	WORCESTER REGIONAL AIRPORT	0	3	3	14	17	0
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**175**	**345**	**71**

Exhibit A

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Total Events (Accidents + Incidents)**

		Aircraft Accidents				Total	
	AIRPORT	Fatal	Non Fatal	Total	Incidents	Events	Deaths
1	NORWOOD MEMORIAL AIRPORT	2	10	12	22	34	2
2	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	14	28	6
3	**FITCHBURG MUNICIPAL AIRPORT**	**7**	**5**	**12**	**15**	**27**	**14**
4	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	9	23	4
5	MARTHA'S VINEYARD AIRPORT	4	3	7	14	21	10
6	BEVERLY MUNICIPAL AIRPORT	2	4	6	14	20	4
7	MANSFIELD MUNICIPAL AIRPORT	1	10	11	9	20	1
8	CHATHAM MUNICIPAL AIRPORT	3	7	10	9	19	3
9	TAUNTON MUNICIPAL AIRPORT	2	10	12	6	18	2
10	WORCESTER REGIONAL AIRPORT	0	3	3	14	17	0
11	BEDFORD-HANSCOM FIELD	2	7	9	7	16	4
12	LAWRENCE MUNICIPAL AIRPORT	0	7	7	7	14	0
13	NANTUCKET MEMORIAL AIRPORT	2	6	8	6	14	2
14	NEW BEDFORD REGIONAL AIRPORT	3	4	7	6	13	3
15	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	4	11	7
16	WESTFIELD - BARNES AIRPORT	1	4	5	6	11	1
17	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	5	9	1
18	GARDNER MUNICIPAL AIRPORT	0	3	3	4	7	0
19	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	1	6	0
20	NORTH ADAMS AIRPORT	4	2	6	0	6	5
21	ORANGE MUNICIPAL AIRPORT	2	1	3	2	5	2
22	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	0	4	0
23	TURNERS FALLS AIRPORT	0	1	1	0	1	0
24	WESTOVER METROPOLITAN AIRPORT	0	0	0	1	1	0
Subtotal - Municipal Airports in Massachusetts		**48**	**122**	**170**	**175**	**345**	**71**

Exhibit B

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Total Accidents (Fatal + Non-Fatal)**

		Aircraft Accidents				Total	
	AIRPORT	**Fatal**	**Non Fatal**	**Total**	**Incidents**	**Events**	**Deaths**
1	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	14	28	6
2	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	9	23	4
3	**FITCHBURG MUNICIPAL AIRPORT**	**7**	**5**	**12**	**15**	**27**	**14**
4	NORWOOD MEMORIAL AIRPORT	2	10	12	22	34	2
5	TAUNTON MUNICIPAL AIRPORT	2	10	12	6	18	2
6	MANSFIELD MUNICIPAL AIRPORT	1	10	11	9	20	1
7	CHATHAM MUNICIPAL AIRPORT	3	7	10	9	19	3
8	BEDFORD-HANSCOM FIELD	2	7	9	7	16	4
9	NANTUCKET MEMORIAL AIRPORT	2	6	8	6	14	2
10	LAWRENCE MUNICIPAL AIRPORT	0	7	7	7	14	0
11	MARTHA'S VINEYARD AIRPORT	4	3	7	14	21	10
12	NEW BEDFORD REGIONAL AIRPORT	3	4	7	6	13	3
13	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	4	11	7
14	BEVERLY MUNICIPAL AIRPORT	2	4	6	14	20	4
15	NORTH ADAMS AIRPORT	4	2	6	0	6	5
16	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	1	6	0
17	WESTFIELD - BARNES AIRPORT	1	4	5	6	11	1
18	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	5	9	1
19	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	0	4	0
20	GARDNER MUNICIPAL AIRPORT	0	3	3	4	7	0
21	ORANGE MUNICIPAL AIRPORT	2	1	3	2	5	2
22	WORCESTER REGIONAL AIRPORT	0	3	3	14	17	0
23	TURNERS FALLS AIRPORT	0	1	1	0	1	0
24	WESTOVER METROPOLITAN AIRPORT	0	0	0	1	1	0
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**175**	**345**	**71**

Exhibit C

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Fatal Accidents**

		Aircraft Accidents				Total	
	AIRPORT	Fatal	Non Fatal	Total	Incidents	Events	Deaths
1	**FITCHBURG MUNICIPAL AIRPORT**	**7**	**5**	**12**	**15**	**27**	**14**
2	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	4	11	7
3	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	14	28	6
4	MARTHA'S VINEYARD AIRPORT	4	3	7	14	21	10
5	NORTH ADAMS AIRPORT	4	2	6	0	6	5
6	CHATHAM MUNICIPAL AIRPORT	3	7	10	9	19	3
7	NEW BEDFORD REGIONAL AIRPORT	3	4	7	6	13	3
8	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	9	23	4
9	BEDFORD-HANSCOM FIELD	2	7	9	7	16	4
10	BEVERLY MUNICIPAL AIRPORT	2	4	6	14	20	4
11	NANTUCKET MEMORIAL AIRPORT	2	6	8	6	14	2
12	NORWOOD MEMORIAL AIRPORT	2	10	12	22	34	2
13	ORANGE MUNICIPAL AIRPORT	2	1	3	2	5	2
14	TAUNTON MUNICIPAL AIRPORT	2	10	12	6	18	2
15	MANSFIELD MUNICIPAL AIRPORT	1	10	11	9	20	1
16	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	5	9	1
17	WESTFIELD - BARNES AIRPORT	1	4	5	6	11	1
18	GARDNER MUNICIPAL AIRPORT	0	3	3	4	7	0
19	LAWRENCE MUNICIPAL AIRPORT	0	7	7	7	14	0
20	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	1	6	0
21	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	0	4	0
22	TURNERS FALLS AIRPORT	0	1	1	0	1	0
23	WESTOVER METROPOLITAN AIRPORT	0	0	0	1	1	0
24	WORCESTER REGIONAL AIRPORT	0	3	3	14	17	0
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**175**	**345**	**71**

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Deaths**

		Aircraft Accidents				Total	
	AIRPORT	Fatal	Non Fatal	Total	Incidents	Events	Deaths
1	**FITCHBURG MUNICIPAL AIRPORT**	**7**	**5**	**12**	**15**	**27**	**14**
2	MARTHA'S VINEYARD AIRPORT	4	3	7	14	21	10
3	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	4	11	7
4	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	14	28	6
5	NORTH ADAMS AIRPORT	4	2	6	0	6	5
6	BEDFORD-HANSCOM FIELD	2	7	9	7	16	4
7	BEVERLY MUNICIPAL AIRPORT	2	4	6	14	20	4
8	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	9	23	4
9	CHATHAM MUNICIPAL AIRPORT	3	7	10	9	19	3
10	NEW BEDFORD REGIONAL AIRPORT	3	4	7	6	13	3
11	NANTUCKET MEMORIAL AIRPORT	2	6	8	6	14	2
12	NORWOOD MEMORIAL AIRPORT	2	10	12	22	34	2
13	ORANGE MUNICIPAL AIRPORT	2	1	3	2	5	2
14	TAUNTON MUNICIPAL AIRPORT	2	10	12	6	18	2
15	MANSFIELD MUNICIPAL AIRPORT	1	10	11	9	20	1
16	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	5	9	1
17	WESTFIELD - BARNES AIRPORT	1	4	5	6	11	1
18	GARDNER MUNICIPAL AIRPORT	0	3	3	4	7	0
19	LAWRENCE MUNICIPAL AIRPORT	0	7	7	7	14	0
20	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	1	6	0
21	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	0	4	0
22	TURNERS FALLS AIRPORT	0	1	1	0	1	0
23	WESTOVER METROPOLITAN AIRPORT	0	0	0	1	1	0
24	WORCESTER REGIONAL AIRPORT	0	3	3	14	17	0
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**175**	**345**	**71**

Exhibit E

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Non-Fatal Accidents**

		Aircraft Accidents				Total	
	AIRPORT	**Fatal**	**Non Fatal**	**Total**	**Incidents**	**Events**	**Deaths**
1	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	9	23	4
2	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	14	28	6
3	MANSFIELD MUNICIPAL AIRPORT	1	10	11	9	20	1
4	NORWOOD MEMORIAL AIRPORT	2	10	12	22	34	2
5	TAUNTON MUNICIPAL AIRPORT	2	10	12	6	18	2
6	BEDFORD-HANSCOM FIELD	2	7	9	7	16	4
7	CHATHAM MUNICIPAL AIRPORT	3	7	10	9	19	3
8	LAWRENCE MUNICIPAL AIRPORT	0	7	7	7	14	0
9	NANTUCKET MEMORIAL AIRPORT	2	6	8	6	14	2
10	**FITCHBURG MUNICIPAL AIRPORT**	**7**	**5**	**12**	**15**	**27**	**14**
11	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	1	6	0
12	BEVERLY MUNICIPAL AIRPORT	2	4	6	14	20	4
13	NEW BEDFORD REGIONAL AIRPORT	3	4	7	6	13	3
14	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	0	4	0
15	WESTFIELD - BARNES AIRPORT	1	4	5	6	11	1
16	GARDNER MUNICIPAL AIRPORT	0	3	3	4	7	0
17	MARTHA'S VINEYARD AIRPORT	4	3	7	14	21	10
18	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	5	9	1
19	WORCESTER REGIONAL AIRPORT	0	3	3	14	17	0
20	NORTH ADAMS AIRPORT	4	2	6	0	6	5
21	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	4	11	7
22	ORANGE MUNICIPAL AIRPORT	2	1	3	2	5	2
23	TURNERS FALLS AIRPORT	0	1	1	0	1	0
24	WESTOVER METROPOLITAN AIRPORT	0	0	0	1	1	0
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**175**	**345**	**71**

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Aircraft Incidents**

		Aircraft Accidents				**Total**	
	AIRPORT	**Fatal**	**Non Fatal**	**Total**	**Incidents**	**Events**	**Deaths**
1	NORWOOD MEMORIAL AIRPORT	2	10	12	22	34	2
2	**FITCHBURG MUNICIPAL AIRPORT**	**7**	**5**	**12**	**15**	**27**	**14**
3	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	14	28	6
4	BEVERLY MUNICIPAL AIRPORT	2	4	6	14	20	4
5	MARTHA'S VINEYARD AIRPORT	4	3	7	14	21	10
6	WORCESTER REGIONAL AIRPORT	0	3	3	14	17	0
7	CHATHAM MUNICIPAL AIRPORT	3	7	10	9	19	3
8	MANSFIELD MUNICIPAL AIRPORT	1	10	11	9	20	1
9	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	9	23	4
10	BEDFORD-HANSCOM FIELD	2	7	9	7	16	4
11	LAWRENCE MUNICIPAL AIRPORT	0	7	7	7	14	0
12	NANTUCKET MEMORIAL AIRPORT	2	6	8	6	14	2
13	NEW BEDFORD REGIONAL AIRPORT	3	4	7	6	13	3
14	TAUNTON MUNICIPAL AIRPORT	2	10	12	6	18	2
15	WESTFIELD - BARNES AIRPORT	1	4	5	6	11	1
16	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	5	9	1
17	GARDNER MUNICIPAL AIRPORT	0	3	3	4	7	0
18	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	4	11	7
19	ORANGE MUNICIPAL AIRPORT	2	1	3	2	5	2
20	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	1	6	0
21	WESTOVER METROPOLITAN AIRPORT	0	0	0	1	1	0
22	NORTH ADAMS AIRPORT	4	2	6	0	6	5
23	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	0	4	0
24	TURNERS FALLS AIRPORT	0	1	1	0	1	0
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**175**	**345**	**71**

Exhibit G

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Alphabetical Order - Summary of Accident Location (on/off airport)**

		Aircraft Accidents			Accident Location	
	AIRPORT	Fatal	Non Fatal	Total	On Airport	Off Airport
1	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	7	7
2	BEDFORD-HANSCOM FIELD	2	7	9	5	4
3	BEVERLY MUNICIPAL AIRPORT	2	4	6	4	2
4	CHATHAM MUNICIPAL AIRPORT	3	7	10	7	3
5	FITCHBURG MUNICIPAL AIRPORT	7	5	12	3	9
6	GARDNER MUNICIPAL AIRPORT	0	3	3	2	1
7	LAWRENCE MUNICIPAL AIRPORT	0	7	7	2	5
8	MANSFIELD MUNICIPAL AIRPORT	1	10	11	9	2
9	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	2	3
10	MARTHA'S VINEYARD AIRPORT	4	3	7	0	7
11	NANTUCKET MEMORIAL AIRPORT	2	6	8	5	3
12	NEW BEDFORD REGIONAL AIRPORT	3	4	7	2	5
13	NORTH ADAMS AIRPORT	4	2	6	3	3
14	NORWOOD MEMORIAL AIRPORT	2	10	12	10	2
15	ORANGE MUNICIPAL AIRPORT	2	1	3	1	2
16	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	2	5
17	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	8	6
18	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	3	1
19	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	0	4
20	TAUNTON MUNICIPAL AIRPORT	2	10	12	5	7
21	TURNERS FALLS AIRPORT	0	1	1	0	1
22	WESTFIELD - BARNES AIRPORT	1	4	5	2	3
23	WESTOVER METROPOLITAN AIRPORT	0	0	0	0	0
24	WORCESTER REGIONAL AIRPORT	0	3	3	2	1
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**84**	**86**

Exhibit H

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Accidents Located On Airport**

		Aircraft Accidents			Accident Location	
	AIRPORT	**Fatal**	**Non Fatal**	**Total**	**On Airport**	**Off Airport**
1	NORWOOD MEMORIAL AIRPORT	2	10	12	10	2
2	MANSFIELD MUNICIPAL AIRPORT	1	10	11	9	2
3	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	8	6
4	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	7	7
5	CHATHAM MUNICIPAL AIRPORT	3	7	10	7	3
6	BEDFORD-HANSCOM FIELD	2	7	9	5	4
7	NANTUCKET MEMORIAL AIRPORT	2	6	8	5	3
8	TAUNTON MUNICIPAL AIRPORT	2	10	12	5	7
9	BEVERLY MUNICIPAL AIRPORT	2	4	6	4	2
10	**FITCHBURG MUNICIPAL AIRPORT**	**7**	**5**	**12**	**3**	**9**
11	NORTH ADAMS AIRPORT	4	2	6	3	3
12	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	3	1
13	GARDNER MUNICIPAL AIRPORT	0	3	3	2	1
14	LAWRENCE MUNICIPAL AIRPORT	0	7	7	2	5
15	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	2	3
16	NEW BEDFORD REGIONAL AIRPORT	3	4	7	2	5
17	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	2	5
18	WESTFIELD - BARNES AIRPORT	1	4	5	2	3
19	WORCESTER REGIONAL AIRPORT	0	3	3	2	1
20	ORANGE MUNICIPAL AIRPORT	2	1	3	1	2
21	MARTHA'S VINEYARD AIRPORT	4	3	7	0	7
22	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	0	4
23	TURNERS FALLS AIRPORT	0	1	1	0	1
24	WESTOVER METROPOLITAN AIRPORT	0	0	0	0	0
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**84**	**86**

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Accidents Located Off Airport**

		Aircraft Accidents			Accident Location	
	AIRPORT	Fatal	Non Fatal	Total	On Airport	Off Airport
1	**FITCHBURG MUNICIPAL AIRPORT**	**7**	**5**	**12**	**3**	**9**
2	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	7	7
3	MARTHA'S VINEYARD AIRPORT	4	3	7	0	7
4	TAUNTON MUNICIPAL AIRPORT	2	10	12	5	7
5	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	8	6
6	LAWRENCE MUNICIPAL AIRPORT	0	7	7	2	5
7	NEW BEDFORD REGIONAL AIRPORT	3	4	7	2	5
8	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	2	5
9	BEDFORD-HANSCOM FIELD	2	7	9	5	4
10	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	0	4
11	CHATHAM MUNICIPAL AIRPORT	3	7	10	7	3
12	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	2	3
13	NANTUCKET MEMORIAL AIRPORT	2	6	8	5	3
14	NORTH ADAMS AIRPORT	4	2	6	3	3
15	WESTFIELD - BARNES AIRPORT	1	4	5	2	3
16	BEVERLY MUNICIPAL AIRPORT	2	4	6	4	2
17	MANSFIELD MUNICIPAL AIRPORT	1	10	11	9	2
18	NORWOOD MEMORIAL AIRPORT	2	10	12	10	2
19	ORANGE MUNICIPAL AIRPORT	2	1	3	1	2
20	GARDNER MUNICIPAL AIRPORT	0	3	3	2	1
21	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	3	1
22	TURNERS FALLS AIRPORT	0	1	1	0	1
23	WORCESTER REGIONAL AIRPORT	0	3	3	2	1
24	WESTOVER METROPOLITAN AIRPORT	0	0	0	0	0
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**84**	**86**

Exhibit J

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Alphabetical Order - Cause of Aircraft Accidents (No Incidents)**

		Aircraft Accidents			Cause of Aircraft Accidents					
	AIRPORT	Fatal	Non Fatal	Total	Pilot Error	Mech Failure	Engine Failure	Weather	Unknown Other	Total
1	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	7	2	1	3	1	14
2	BEDFORD-HANSCOM FIELD	2	7	9	6	3	0	0	0	9
3	BEVERLY MUNICIPAL AIRPORT	2	4	6	5	0	1	0	0	6
4	CHATHAM MUNICIPAL AIRPORT	3	7	10	5	0	2	2	1	10
5	FITCHBURG MUNICIPAL AIRPORT	7	5	12	8	1	1	0	2	12
6	GARDNER MUNICIPAL AIRPORT	0	3	3	3	0	0	0	0	3
7	LAWRENCE MUNICIPAL AIRPORT	0	7	7	4	0	3	0	0	7
8	MANSFIELD MUNICIPAL AIRPORT	1	10	11	8	0	0	1	2	11
9	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	4	0	0	1	0	5
10	MARTHA'S VINEYARD AIRPORT	4	3	7	3	1	0	2	1	7
11	NANTUCKET MEMORIAL AIRPORT	2	6	8	4	1	1	1	1	8
12	NEW BEDFORD REGIONAL AIRPORT	3	4	7	6	1	0	0	0	7
13	NORTH ADAMS AIRPORT	4	2	6	3	0	2	1	0	6
14	NORWOOD MEMORIAL AIRPORT	2	10	12	9	1	0	1	1	12
15	ORANGE MUNICIPAL AIRPORT	2	1	3	2	1	0	0	0	3
16	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	4	0	0	0	3	7
17	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	6	4	1	2	1	14
18	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	1	1	0	2	0	4
19	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	0	2	2	0	0	4
20	TAUNTON MUNICIPAL AIRPORT	2	10	12	6	1	3	2	0	12
21	TURNERS FALLS AIRPORT	0	1	1	0	1	0	0	0	1
22	WESTFIELD - BARNES AIRPORT	1	4	5	4	0	1	0	0	5
23	WESTOVER METROPOLITAN AIRPORT	0	0	0	0	0	0	0	0	0
24	WORCESTER REGIONAL AIRPORT	0	3	3	3	0	0	0	0	3
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**101**	**20**	**18**	**18**	**13**	**170**
	Statewide Average =				**59%**	**12%**	**11%**	**11%**	**7%**	

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Cause of Aircraft Accident - Pilot Error**

		Aircraft Accidents			Pilot Error
	AIRPORT	**Fatal**	**Non Fatal**	**Total**	
1	NORWOOD MEMORIAL AIRPORT	2	10	12	9
2	**FITCHBURG MUNICIPAL AIRPORT**	**7**	**5**	**12**	**8**
3	MANSFIELD MUNICIPAL AIRPORT	1	10	11	8
4	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	7
5	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	6
6	TAUNTON MUNICIPAL AIRPORT	2	10	12	6
7	BEDFORD-HANSCOM FIELD	2	7	9	6
8	NEW BEDFORD REGIONAL AIRPORT	3	4	7	6
9	CHATHAM MUNICIPAL AIRPORT	3	7	10	5
10	BEVERLY MUNICIPAL AIRPORT	2	4	6	5
11	NANTUCKET MEMORIAL AIRPORT	2	6	8	4
12	LAWRENCE MUNICIPAL AIRPORT	0	7	7	4
13	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	4
14	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	4
15	WESTFIELD - BARNES AIRPORT	1	4	5	4
16	MARTHA'S VINEYARD AIRPORT	4	3	7	3
17	NORTH ADAMS AIRPORT	4	2	6	3
18	GARDNER MUNICIPAL AIRPORT	0	3	3	3
19	WORCESTER REGIONAL AIRPORT	0	3	3	3
20	ORANGE MUNICIPAL AIRPORT	2	1	3	2
21	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	1
22	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	0
23	TURNERS FALLS AIRPORT	0	1	1	0
24	WESTOVER METROPOLITAN AIRPORT	0	0	0	0
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**101**

Exhibit L

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Cause of Aircraft Accident - Pilot Error (No Incidents)**

		Aircraft Accidents			Cause = Pilot Error	
	AIRPORT	Fatal	Non Fatal	Total	Pilot Error	Percent Pilot Error
1	GARDNER MUNICIPAL AIRPORT	0	3	3	3	100.0%
2	WORCESTER REGIONAL AIRPORT	0	3	3	3	100.0%
3	NEW BEDFORD REGIONAL AIRPORT	3	4	7	6	85.7%
4	BEVERLY MUNICIPAL AIRPORT	2	4	6	5	83.3%
5	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	4	80.0%
6	WESTFIELD - BARNES AIRPORT	1	4	5	4	80.0%
7	NORWOOD MEMORIAL AIRPORT	2	10	12	9	75.0%
8	MANSFIELD MUNICIPAL AIRPORT	1	10	11	8	72.7%
9	BEDFORD-HANSCOM FIELD	2	7	9	6	66.7%
10	**FITCHBURG MUNICIPAL AIRPORT**	**7**	**5**	**12**	**8**	**66.7%**
11	ORANGE MUNICIPAL AIRPORT	2	1	3	2	66.7%
12	LAWRENCE MUNICIPAL AIRPORT	0	7	7	4	57.1%
13	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	4	57.1%
14	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	7	50.0%
15	CHATHAM MUNICIPAL AIRPORT	3	7	10	5	50.0%
16	NANTUCKET MEMORIAL AIRPORT	2	6	8	4	50.0%
17	NORTH ADAMS AIRPORT	4	2	6	3	50.0%
18	TAUNTON MUNICIPAL AIRPORT	2	10	12	6	50.0%
19	MARTHA'S VINEYARD AIRPORT	4	3	7	3	42.9%
20	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	6	42.9%
21	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	1	25.0%
22	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	0	0.0%
23	TURNERS FALLS AIRPORT	0	1	1	0	0.0%
24	WESTOVER METROPOLITAN AIRPORT	0	0	0	0	0.0%
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**101**	
	Statewide Average =				**59%**	

Exhibit M

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Alphabetical Order - Aircraft Accidents by Type of Aircraft**

		Aircraft Accidents			Accidents by Type of Aircraft									
	AIRPORT	Fatal	Non Fatal	Total	SEP	MEP	MET	MEJ	SHP	SHT	ULT	EXP	GLD	Total
1	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	4	4	2	3	0	0	1	0	0	14
2	BEDFORD-HANSCOM FIELD	2	7	9	8	0	0	1	0	0	0	0	0	9
3	BEVERLY MUNICIPAL AIRPORT	2	4	6	4	0	0	0	1	1	0	0	0	6
4	CHATHAM MUNICIPAL AIRPORT	3	7	10	10	0	0	0	0	0	0	0	0	10
5	FITCHBURG MUNICIPAL AIRPORT	7	5	12	7	1	1	0	0	0	0	3	0	12
6	GARDNER MUNICIPAL AIRPORT	0	3	3	3	0	0	0	0	0	0	0	0	3
7	LAWRENCE MUNICIPAL AIRPORT	0	7	7	7	0	0	0	0	0	0	0	0	7
8	MANSFIELD MUNICIPAL AIRPORT	1	10	11	9	1	0	0	1	0	0	0	0	11
9	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	5	0	0	0	0	0	0	0	0	5
10	MARTHA'S VINEYARD AIRPORT	4	3	7	5	1	1	0	0	0	0	0	0	7
11	NANTUCKET MEMORIAL AIRPORT	2	6	8	5	3	0	0	0	0	0	0	0	8
12	NEW BEDFORD REGIONAL AIRPORT	3	4	7	5	1	0	0	0	1	0	0	0	7
13	NORTH ADAMS AIRPORT	4	2	6	3	1	2	0	0	0	0	0	0	6
14	NORWOOD MEMORIAL AIRPORT	2	10	12	8	1	1	1	1	0	0	0	0	12
15	ORANGE MUNICIPAL AIRPORT	2	1	3	3	0	0	0	0	0	0	0	0	3
16	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	3	1	1	0	1	1	0	0	0	7
17	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	8	1	0	0	2	1	0	0	2	14
18	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	2	2	0	0	0	0	0	0	0	4
19	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	2	0	0	0	0	0	1	1	0	4
20	TAUNTON MUNICIPAL AIRPORT	2	10	12	10	0	0	0	2	0	0	0	0	12
21	TURNERS FALLS AIRPORT	0	1	1	0	0	0	0	0	0	1	0	0	1
22	WESTFIELD - BARNES AIRPORT	1	4	5	5	0	0	0	0	0	0	0	0	5
23	WESTOVER METROPOLITAN AIRPORT	0	0	0	0	0	0	0	0	0	0	0	0	0
24	WORCESTER REGIONAL AIRPORT	0	3	3	3	0	0	0	0	0	0	0	0	3
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**119**	**17**	**8**	**5**	**8**	**4**	**3**	**4**	**2**	**170**
	Statewide Average =				**70%**	**10%**	**5%**	**3%**	**5%**	**2%**	**2%**	**2%**	**1%**	

Exhibit N

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: **Alphabetical Order - Aircraft Accidents by Type of Aircraft - Single Engine Piston (SEP)**

		Aircraft Accidents			Accidents by Type of Aircraft									
	AIRPORT	Fatal	Non Fatal	Total	SEP	MEP	MET	MEJ	SHP	SHT	ULT	EXP	GLD	Total
1	CHATHAM MUNICIPAL AIRPORT	3	7	10	10	0	0	0	0	0	0	0	0	10
2	TAUNTON MUNICIPAL AIRPORT	2	10	12	10	0	0	0	2	0	0	0	0	12
3	MANSFIELD MUNICIPAL AIRPORT	1	10	11	9	1	0	0	1	0	0	0	0	11
4	BEDFORD-HANSCOM FIELD	2	7	9	8	0	0	1	0	0	0	0	0	9
5	NORWOOD MEMORIAL AIRPORT	2	10	12	8	1	1	1	1	0	0	0	0	12
6	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	8	1	0	0	2	1	0	0	2	14
7	**FITCHBURG MUNICIPAL AIRPORT**	**7**	**5**	**12**	**7**	**1**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**12**
8	LAWRENCE MUNICIPAL AIRPORT	0	7	7	7	0	0	0	0	0	0	0	0	7
9	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	5	0	0	0	0	0	0	0	0	5
10	MARTHA'S VINEYARD AIRPORT	4	3	7	5	1	1	0	0	0	0	0	0	7
11	NANTUCKET MEMORIAL AIRPORT	2	6	8	5	3	0	0	0	0	0	0	0	8
12	NEW BEDFORD REGIONAL AIRPORT	3	4	7	5	1	0	0	0	1	0	0	0	7
13	WESTFIELD - BARNES AIRPORT	1	4	5	5	0	0	0	0	0	0	0	0	5
14	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	4	4	2	3	0	0	1	0	0	14
15	BEVERLY MUNICIPAL AIRPORT	2	4	6	4	0	0	0	1	1	0	0	0	6
16	GARDNER MUNICIPAL AIRPORT	0	3	3	3	0	0	0	0	0	0	0	0	3
17	NORTH ADAMS AIRPORT	4	2	6	3	1	2	0	0	0	0	0	0	6
18	ORANGE MUNICIPAL AIRPORT	2	1	3	3	0	0	0	0	0	0	0	0	3
19	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	3	1	1	0	1	1	0	0	0	7
20	WORCESTER REGIONAL AIRPORT	0	3	3	3	0	0	0	0	0	0	0	0	3
21	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	2	2	0	0	0	0	0	0	0	4
22	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	2	0	0	0	0	0	1	1	0	4
23	TURNERS FALLS AIRPORT	0	1	1	0	0	0	0	0	0	1	0	0	1
24	WESTOVER METROPOLITAN AIRPORT	0	0	0	0	0	0	0	0	0	0	0	0	0
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**119**	**17**	**8**	**5**	**8**	**4**	**3**	**4**	**2**	**170**

Exhibit O

Massachusetts Aeronautics Commission

Summary of Aircraft Accidents / Incidents

at Municipal Airports in Massachusetts 1994 - 2004

Ranking Criteria: Aircraft Accidents by Type of Aircraft - Percentage of Single Engine Piston (SEP)

		Aircraft Accidents			Accidents by Type of Aircraft										Percent
	AIRPORT	Fatal	Non Fatal	Total	SEP	MEP	MET	MEJ	SHP	SHT	ULT	EXP	GLD	Total	SEP
1	CHATHAM MUNICIPAL AIRPORT	3	7	10	10	0	0	0	0	0	0	0	0	10	100.0%
2	LAWRENCE MUNICIPAL AIRPORT	0	7	7	7	0	0	0	0	0	0	0	0	7	100.0%
3	MARSHFIELD MUNICIPAL AIRPORT	0	5	5	5	0	0	0	0	0	0	0	0	5	100.0%
4	WESTFIELD - BARNES AIRPORT	1	4	5	5	0	0	0	0	0	0	0	0	5	100.0%
5	GARDNER MUNICIPAL AIRPORT	0	3	3	3	0	0	0	0	0	0	0	0	3	100.0%
6	ORANGE MUNICIPAL AIRPORT	2	1	3	3	0	0	0	0	0	0	0	0	3	100.0%
7	WORCESTER REGIONAL AIRPORT	0	3	3	3	0	0	0	0	0	0	0	0	3	100.0%
8	BEDFORD-HANSCOM FIELD	2	7	9	8	0	0	1	0	0	0	0	0	9	88.9%
9	TAUNTON MUNICIPAL AIRPORT	2	10	12	10	0	0	0	2	0	0	0	0	12	83.3%
10	MANSFIELD MUNICIPAL AIRPORT	1	10	11	9	1	0	0	1	0	0	0	0	11	81.8%
11	MARTHA'S VINEYARD AIRPORT	4	3	7	5	1	1	0	0	0	0	0	0	7	71.4%
12	NEW BEDFORD REGIONAL AIRPORT	3	4	7	5	1	0	0	0	1	0	0	0	7	71.4%
13	NORWOOD MEMORIAL AIRPORT	2	10	12	8	1	1	1	1	0	0	0	0	12	66.7%
14	BEVERLY MUNICIPAL AIRPORT	2	4	6	4	0	0	0	1	1	0	0	0	6	66.7%
15	NANTUCKET MEMORIAL AIRPORT	2	6	8	5	3	0	0	0	0	0	0	0	8	62.5%
16	**FITCHBURG MUNICIPAL AIRPORT**	**7**	**5**	**12**	**7**	**1**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**12**	**58.3%**
17	PLYMOUTH MUNICIPAL AIRPORT	3	11	14	8	1	0	0	2	1	0	0	2	14	57.1%
18	NORTH ADAMS AIRPORT	4	2	6	3	1	2	0	0	0	0	0	0	6	50.0%
19	PROVINCETOWN MUNICIPAL AIRPORT	1	3	4	2	2	0	0	0	0	0	0	0	4	50.0%
20	SOUTHBRIDGE MUNICIPAL AIRPORT	0	4	4	2	0	0	0	0	0	1	1	0	4	50.0%
21	PITTSFIELD MUNICIPAL AIRPORT	5	2	7	3	1	1	0	1	1	0	0	0	7	42.9%
22	BARNSTABLE MUNICIPAL AIRPORT	4	10	14	4	4	2	3	0	0	1	0	0	14	28.6%
23	TURNERS FALLS AIRPORT	0	1	1	0	0	0	0	0	0	1	0	0	1	0.0%
24	WESTOVER METROPOLITAN AIRPORT	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
	Subtotal - Municipal Airports in Massachusetts	**48**	**122**	**170**	**119**	**17**	**8**	**5**	**8**	**4**	**3**	**4**	**2**	**170**	
	Statewide Average =				**70%**	**10%**	**5%**	**3%**	**5%**	**2%**	**2%**	**2%**	**1%**		

Massachusetts Aeronautics Commission

Airport Characteristics Matrix

The matrix below includes a list of twenty airport features. It is intended to distinguish individual municipal airports in Massachusetts for comparative use in a report prepared by the MAC on the history of aircraft accidents and incidents in Massachusetts for the period of 1994 through 2004.

Features common to every airport, such as: based aircraft fleet includes single engine piston (SEP) aircraft have not been included for obvious reasons.

Closest match to Fitchburg Municipal Airport

Close match to Fitchburg Municipal Airport

	Number of Based aircraft > 100	Airport has multiple runways	Primary RW greater than 4,000’	Based AC Fleet includes MEP/J	Based AC Fleet includes EXP/ULT	Air Traffic Control Tower	Commercial Passenger Service	Part 139 Certificated Airport	Part 135 - Air Taxi Operations	Fixed Base Operator	Flight School on airport	Restaurant on airport	Non-precision approach procedure	Precision Inst. approach procedure	Educational / Safety Training Program / Airport Safety Committee	Community Surroundings – Densly Developed (residential / industrial)	Community Surroundings - Rural	Airport environment – Flat Terrain	Airport environment – Hilly / Mountainous Terrain	Airport environment – Coastal
BARNSTABLE MUNICIPAL AIRPORT		●	●			●	●	●	●	●	●	●	●	●	●	●		●		●
BEDFORD-HANSCOM FIELD	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●		
BEVERLY MUNICIPAL AIRPORT	●	●	●	●	●	●			●	●	●	●	●			●			●	
CHATHAM MUNICIPAL AIRPORT										●	●	●	●				●	●		●
FITCHBURG MUNICIPAL AIRPORT	●	●	●	●	●				●	●	●	●	●		●	●			●	
GARDNER MUNICIPAL AIRPORT				●	●					●			●				●		●	
LAWRENCE MUNICIPAL AIRPORT	●	●	●	●	●	●				●	●	●	●	●	●	●			●	
MANSFIELD MUNICIPAL AIRPORT	●	●		●	●					●	●		●		●	●		●		
MARSHFIELD MUNICIPAL AIRPORT				●					●	●	●		●			●		●		●
MARTHA'S VINEYARD AIRPORT	●	●	●	●		●	●	●	●	●		●	●	●			●	●		●
NANTUCKET MEMORIAL AIRPORT	●	●	●	●	●	●	●	●	●	●		●	●	●		●	●	●		●
NEW BEDFORD REGIONAL AIRPORT	●	●	●	●		●	●		●	●	●	●	●	●	●	●		●		
NORTH ADAMS AIRPORT			●	●	●					●					●	●			●	
NORWOOD MEMORIAL AIRPORT	●	●	●	●		●			●	●	●	●	●		●	●		●		
ORANGE MUNICIPAL AIRPORT		●	●	●	●					●		●	●		●		●	●		
PITTSFIELD MUNICIPAL AIRPORT		●	●	●	●					●	●		●		●		●		●	
PLYMOUTH MUNICIPAL AIRPORT	●	●	●	●	●				●	●	●	●	●		●	●		●		
PROVINCETOWN MUNICIPAL AIRPORT				●			●			●			●	●			●	●		●
SOUTHBRIDGE MUNICIPAL AIRPORT										●	●	●	●			●			●	
TAUNTON MUNICIPAL AIRPORT	●	●		●	●					●	●		●		●	●		●		
TURNERS FALLS AIRPORT					●				●				●				●		●	
WESTFIELD - BARNES AIRPORT	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●		●		
WESTOVER METROPOLITAN AIRPORT		●	●	●	●	●		●	●	●			●	●	●	●		●		
WORCESTER REGIONAL AIRPORT		●	●	●	●	●		●	●	●	●		●	●	●	●			●	

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Exhibit Q